

A new species of *Agathirsia* Westwood (Hymenoptera: Braconidae: Agathidinae) from Mexico

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Abstract

A remarkable new species of *Agathirsia* is described. Unlike all other species of *Agathirsia*, and most other Agathidinae, it lacks pegs or thick spines at the apex of the hind tibia. The only other genus of Agathidinae with this characteristic is *Crassomicrodus*, and the new species' potential affinities with members of *Crassomicrodus* are discussed.

Key words: Taxonomy, systematics, parasitic Hymenoptera, Insecta

Introduction

The recent revision of *Agathirsia* (Pucci and Sharkey 2004) included 31 species, most with one or a few representative specimens. Thus, the discovery of a new species is not surprising. The new species described here, *Agathirsia schlingeri* Sharkey, is unique and interesting because it combines features that were previously thought to be exclusive to members of either *Crassomicrodus* or *Agathirsia*. Unlike other members of *Agathirsia*, *A. schlingeri* lacks pegs or spines at the apex of the hind tibia. This characteristic is exceptionally rare within the Agathidinae and is a synapomorphy for members of *Crassomicrodus*. The presence of flattened pegs is a proposed synapomorphy for members of *Agathirsia*. The reduction in the size of the ventral mandibular tooth is also an autapomorphy for *Agathirsia* as suggested by the analysis of Pucci and Sharkey (2004), however, the ventral tooth is well developed in *A. schlingeri*. There were three synapomorphies posited by Pucci and Sharkey (2004) for *Crassomicrodus*, a short ovipositor (*A. schlingeri* has a very long ovipositor), a vestigial basal lobe on the tarsal claws (*A. schlingeri* has well developed basal lobes on the tarsal claws), and the lack of pegs or enlarged spines near the apex of the lateral surface of the hind tibia (*A. schlingeri* shares this character state).

Methods and Results

In the following text “P&S Fig. #” refers to figures in Pucci and Sharkey (2004). Terminology follows Sharkey and Wharton (1997).

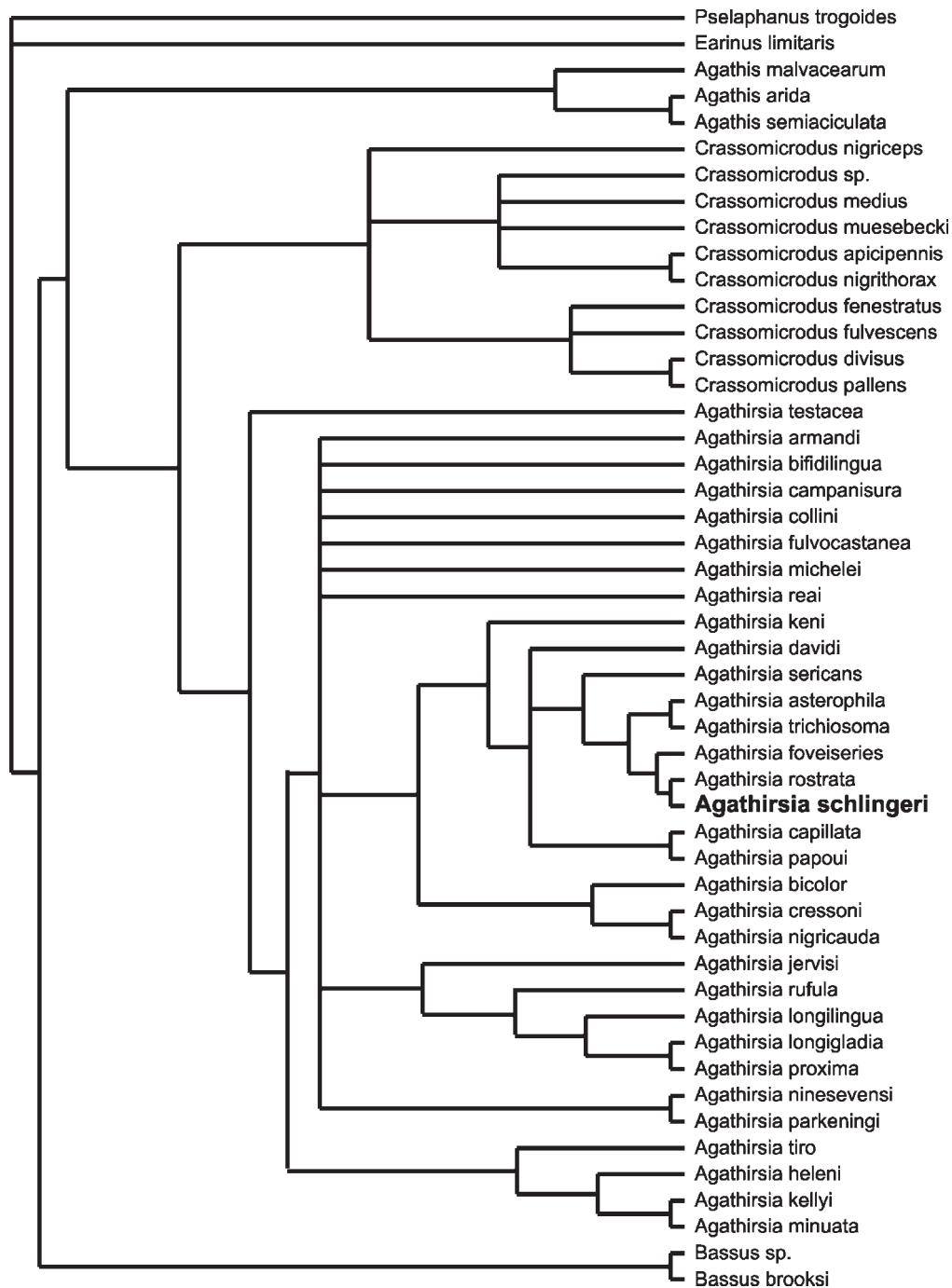


FIGURE 1. Strict consensus tree of species of *Agathirsia*.

The conflicting character states described in the introduction made it problematic to place the new species. Although it looks very much like a species of *Agathirsia*, it does not possess the critical synapomorphies. The morphological data of *A. schlingeri* were scored and included in a reanalysis of the published data set (Pucci and Sharkey 2004). The character state codes for *A. schlingeri* are 131211112222 -32986, corresponding to characters 1–18. The entire data set is at www.uky.edu/~mjshar0. A heuristic search was done, the details of which are given in Pucci and Sharkey (2004), using PAUP version 4.0b10 (Swofford 2002). The strict consensus tree of 112 minimum length trees is shown in the cladogram of Figure 1, with some of the outgroup taxa condensed to the generic level. The tree statistics for the 112 trees are CI = 0.426, RI = 0.768, RC = 0.327. *A. schlingeri* is placed as the sister species of *A. rostrata*, and it is well-nested within the genus *Agathirsia*. The two species are very similar, even in color. The differences between them include the absence of hind tibial pegs, lack of foveae on the frons of *A. schlingeri* and its very long ovipositor. The phylogenetic placement implies that *A. schlingeri*, or its ancestor, lost flattened pegs on the hind tibia. The placement is consistent with the hypothesis, proposed by Pucci and Sharkey (2004), which stated that the lack of well developed mandibular teeth in most specimens of *Agathirsia* is the result of wear associated with digging in the soil where their hosts are likely found.

***Agathirsia schlingeri* sp. n.**

Fig. 2a–d.

Diagnosis: This species can be distinguished from all other species of *Agathirsia* by any of the following characters: extremely long ovipositor, almost 1.5 X body length; pegs at apex of hind tibia lacking; unique coloration, black except for yellowish brown fore and midtarsi (Fig. 2). In the key by Pucci and Sharkey (2004) *A. schlingeri* runs to couplet 14, where it can be separated from *A. davidi* and *A. keni* with any of the character states listed above.

Description: Holotype ♀.

Color: (Fig. 2a) Black, except fore and mid tarsi yellowish brown; wings lightly infusate. **Body length:** excluding ovipositor, 8.6 mm. **Head:** longest seta at mid-antenna approximately 1/2 antenna width (as in P&S Fig. 7c); labial palpomere-2 subequal or shorter than combined length of 3 + 4; mandible with second mandibular tooth well developed (as in P&S Fig. 1d); length of glossa fork = 0.16mm; glossa length less than 2X galea length; length of glossa = 0.72mm; ratio of glossa length : foretibia length = .41mm; ratio of malar space : eye height = 0.56; face above clypeus with median longitudinal carinae (Fig. 2c); area anterior to ocellus without pits forming V-shape (as in P&S Fig. 7d); area between tentorial pit and antennal insertion without line of foveae. **Mesosoma:** notauli foveate and complete (as in P&S Fig. 5a); propodeum mildly rugose posteriorly mildly foveate anteriorly, shallow furrow along midline smooth and glabrous (as in P&S Figs.

9a,b); sternalus foveate (Fig. 2b); mesepisternum without lobes between midcoxae; basal lobe of claws distinct (as in P&S Fig. 3a); thick, apically flattened apical spines on hind tibia absent (Fig. 2d); hind basitarsus not tapered distally; 1cu-a and 1-M of forewing separate (as in P&S Fig. 9c). **Metasoma**: ratio of posterior width of first tergum: length of first tergum = 0.70; setae on tergum 3 short and sparse on distal 1/2 (as in P&S Fig. 6d); tergum 3 without transverse groove; ovipositor length 12.5mm; ovipositor 7.68 X longer than hind basitarsus.

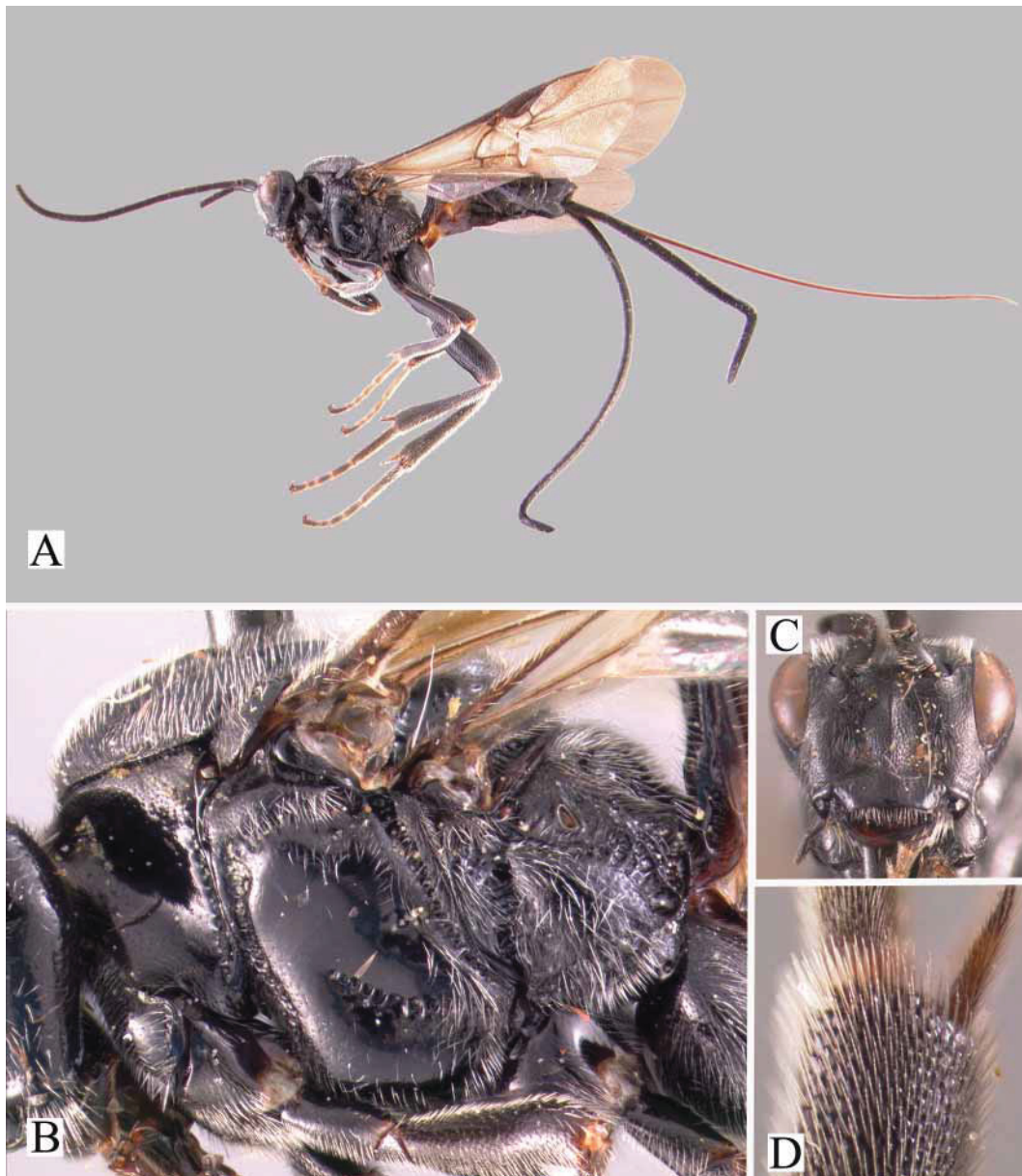


FIGURE 2. *A. schlingeri*: A) Lateral habitus. B) Lateral view of mesosoma. C) Anterior view of head. D) Lateral view of apex of hind tibia.

Male: Unknown.

Etymology. The species is named in honor of Dr. Evert Schlinger, the collector of the sole specimen of this species, in recognition of his many contributions to insect taxonomy.

Specimen Examined: Holotype: Mexico, Sinaloa, Guerrero: ~1 mi. (1,930m) W. Las Palmita[s], (Hwy. #40), [Lat. 25.6166667, Long. -108.4333333, Elevation 68m.], 13.ix.1977, E.I. Schlinger (Essig Museum Entomology Collection, University of California, Berkeley, California).

Acknowledgments

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